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Improving 21st century literacy skills and student engagement by integrating digital storytelling across the curriculum

Sandra J. Steinfadt
University of Northern Iowa

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The purpose of this literature review is to explore how literacy skills and engagement are increased through the integration of digital story telling into multiple content areas. Thirty peer reviewed articles were analyzed for this peer review. It has been revealed that the use of digital storytelling allows students more creative freedom and increases self-expression and helps students that normally struggle to create written pieces have greater success. Digital storytelling connects classroom content to students' lives, encourages deeper reflection, helps students analyze information and increases their motivation to succeed.

IMPROVING 21st CENTURY LITERACY SKILLS AND STUDENT ENGAGEMENT BY INTEGRATING DIGITAL STORYTELLING ACROSS THE CURRICULUM

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Sandra Steinfadt

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This Review by: Sandra J. Steinfadt

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Leigh E. Zeitz
Graduate Faculty Reader

5/3/13
Date Approved

Ping Gao
Graduate Faculty Reader

5-6-13
Date Approved

Jill Uhlenberg
Head, Department of Curriculum and Instruction

Abstract

The purpose of this literature review is to explore how literacy skills and engagement are increased through the integration of digital story telling into multiple content areas. Thirty peer reviewed articles were analyzed for this peer review. It has been revealed that the use of digital storytelling allows students more creative freedom and increases self-expression and helps students that normally struggle to create written pieces have greater success. Digital storytelling connects classroom content to student's lives, encourages deeper reflection, helps students analyze information and increases their motivation to succeed.

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Introduction

It is part of human nature to want to tell a story. Egyptian hieroglyphics, Aborigine rock art stories and Native American stories that are shared in traditional ceremonies are all evidence of the long history of storytelling across human history (Roby, 2010). Storytelling has been a means of preserving and sharing history, entertainment and education in the middle ages stories were told by traveling minstrels. The only people who had printed books were the very wealthy, so the less fortunate learned of their history through the oral telling from these traveling showmen. From the 1400's to the 1800's books were becoming available to a wider range of people and the stories within were mainly used to educate and teach children the difference between good and bad. After the 1800's books began to shift more towards the realm of entertainment and focused less on educating. As radio became available in the early 20th century people began to listen to oral stories once again to learn of current and historical events as well as for entertainment. In the 1950's television began to make its way into homes around the world and a whole new medium for storytelling was beginning to take hold. Once again stories could be used for educating young children through educational programming that was created and aired on Public Broadcasting Stations across America. In the late 1980's computers were starting to make their appearance in homes and schools (van Gils, 2005). Computers offer a whole new world of possibilities to storytelling. The addition of technology to our storytelling has provided an excellent medium for creating original artifacts for students to show their learning and to express themselves in a manner that fits their learning styles. Multimedia components, such as images, sound, music and graphics, are added to present the story in a way that paper and pencil alone could never achieve. In its most simple form digital storytelling is edited with software, such as

Windows Movie Maker, Apple iMovie, and Adobe Premiere; As well as virtual reality programs such as Second Life and more recently with the multiple applications available on the iPad (Xu, Park & Baek, 2011). This new form of storytelling has become known as digital storytelling. A common definition of digital storytelling, derived from the articles in this review is: a story that incorporates pictures, music, audio tracks, and video compiled into a multimedia presentation.

Digital storytelling is one way to integrate technology across the curricula and helps students develop both old and new literacy skills as they explore the technology they have available to them and at their fingertips literally twenty-four hours a day. What is literacy? This is not as easy to answer as one might believe. Dictionary.com defines literacy as; *the quality or state of being literate, especially the ability to read and write.* Today literacy covers more than just the ability to read and write, it also covers technological literacy, visual literacy, media literacy and information literacy (Sylvester & Greenidge, 2009). Students need to be able to do more than just read and write. They need to be able to use the technology available to them in a competent manner and know the boundaries of what is acceptable use of said technology.

Integrating technology into our educational settings has become a focus for schools as they compete to keep up with other nations, but technology integration is much more than putting computers and software into a classroom. It must be used in an effective manner for students to gain the maximum benefits through the tools that are available to them (Sadik, 2008). Bringing the natural human tendency of storytelling into the classroom through digital storytelling is proving to be beneficial to both students and teachers. Digital storytelling allows students the opportunity to become active participants in their education,

they are allowed to show self-expression and integrate the technology they use outside of school in the classroom (Ohler, 2005). Teachers are able to capture the attention of students when introducing new materials and engage students in the curriculum.

The purpose of this review is to explore how digital storytelling might be integrated into the curriculum of K-12 classrooms improves literacy skills and increases student engagement. A vast number of articles can be found that discuss digital storytelling in K-12 education. This review examines over thirty journal articles-to answer the following questions:

1. Does digital storytelling increase student engagement?
2. Does digital storytelling improve student's literacy skills?
3. How can digital storytelling be integrated across the curriculum in K-12 classrooms?

Methodology

A comprehensive literature search was conducted to investigate if digital storytelling increases students' literacy skills and engagement in learning activities. Search parameters were limited to 2002 and forward to reflect the most recent technology advances available for use in digital story telling projects. Key search terms used to locate articles related to this review included digital storytelling, personal narrative, literacy, engagement, 21st Century learning skills, iPad and technology. The data bases that were used included: ERIC, EBSCO (education and computer sciences indexes), Web of Science, SciVerse, Science Direct and Google Scholar. The relative newness of this area of study also led me to use blogs, wikis and unpublished, for discussion, conference papers to help me locate additional resources.

More than 1500 articles were found to be directly related to this topic. These articles were sorted and narrowed down to thirty-two in this review. The articles were evaluated for inclusion using tables. The types of research were evaluated to determine if it was qualitative or quantitative and the methods were looked at to see if they were valid. Articles were chosen by date of publication with a preference for those published after 2002 to ensure the information was relevant to 21st Century Literacy Skills. Authors were favored who have a background in education either as practicing classroom teachers or as higher education academics, and research practitioners with a history of work in the area of digital storytelling. A preference for primary source, peer reviewed articles was also used in the selection process.

Analysis and Discussion

Storytelling is an engaging medium for students to demonstrate their understanding of content, express opinions in a safe format and make connections to the world around them. They can weave together individual experiences to reveal a picture of a community, a group, a vision or a shared value (The Association for Progressive Communication, 2011). This versatile medium empowers students to become actively engaged in their learning and increases their desire to communicate effectively with others and build their 21st century literacy skills.

Technology is everywhere and bringing it into the classroom is the next step in bringing 21st century skills into the educational setting. This can be overwhelming for teachers as they try to meet common core standards, but by using what is already second nature to students can be the most effective answer. Technology integration, including digital storytelling improves literacy skills, helps all students through differentiated instruction, and promotes 21st century literacy skills (Hett, 2012). Integrating digital storytelling into the mainstream of curriculum allows students to use skills and talents that they may not otherwise bring into their learning. These skills might go unutilized if these 21st century skills are integrated into lessons across the curriculum. Digital storytelling uses concepts from art, media production, story organizational skills, planning, time management, cooperative learning as well as oral and written literacy skills all in an integrated fashion (Ohler, 2006).

Digital storytelling projects focus on these 21st century skills: digital literacy, global literacy, technology literacy, visual literacy and information literacy. These literacies are the frame work for technology integration standards teachers are being asked to meet in their lessons (Hett, 2012).

- Digital literacy is defined as the ability to communicate with an ever-expanding community to discuss issues, gather information and seek help.
- Global literacy is the capacity to read, interpret, respond and contextualize messages from a global perspective.
- Technology literacy includes the ability to use computers and other technology to improve learning, productivity, and performance.
- Visual literacy is defined as the ability to understand, produce, and communicate through visual images.
- Lastly information literacy is the ability to find, evaluate, and synthesize information (Robin, 2008).

The tools that are needed to create digital stories are already available in most schools computer labs. There are many programs which are standard on computers such as Windows Movie Maker for PCs and iMovie for Macs. There are also audio recording programs available at little or no cost. Audacity is a free online recording program for PCs and Garage Band comes standard on most Macs. Many schools now have iPads available for students to use when taking photos. There are also many applications available, at no cost that assist with cropping, resizing and editing these photos. A large percentage of students also have cell phones that include a camera function and digital cameras are becoming less costly every year (Wawro, 2012). These readily available tools allow teachers to achieve the goal of preparing their students for the future by teaching them the literacy skills they will need to compete in a world that is entrenched in the electronic realm (Karchmer-Klein, 2012).

Engagement

Students are captivated by multimedia such as Internet, video games, television and films. They are surrounded by these technologies in every other aspect of their lives so bringing them into the classroom to improve engagement is one way to make a connection between in and out of school time. Digital storytelling can be used to create real life situations to improve student's involvement in the learning process (Kajder, 2004). Bringing technology into the classroom takes advantage of the tools students are already familiar and comfortable with and will improve instruction and benefit lifelong learning. The technology students are already working with in their daily lives is exciting and engaging (Hett, 2012). Digital storytelling is one way in which to use these technology tools.

Stories have the ability to build bridges between individuals through concrete examples instead of abstract ideas. Students build connections to personal experiences which enhances meaning making and helps in the retention of information. When a story is being told it is easier to make connections to personal memories and the more places that information is stored in the brain the more likely a student will retain the information. The more connections students make to the information the more closely they will be engaged in what is being taught. The power of a story invites the listener to experience the story through the power of voice, this is something that cannot be captured to the same extent in printed text alone (Lowenthal, 2008).

In her quantitative pilot study of 71 high school students Malin (2010) found through questionnaires and group discussion, students become more engaged readers and writers when using digital storytelling. They reflect, decode and comprehend better when they are actively involved in the story or information they are presenting. Digital storytelling allows

the student to become a participant in the story, they immersed in the creation of the stories as well as watching what their classmates have created. Her study found that 88 percent of the student participants found this method of learning to be enjoyable and would like to use this method again in their course work. 96 percent of the students felt that they were better prepared for class discussion and felt more inclined to participate.

Sadik (2008) has found in his research with 4 classroom teachers working with students ranging in age from 6 to 15 years old, digital stories are a powerful tool for students to help make sense of complex ideas and concepts. The mathematics, science, English and social studies teachers who participated in the study observed the use of digital stories helped increase understanding of curricular content, improved technical skills, and improved students ability to work together. Students were also observed helping each other and working out solutions to problems that would arise during the construction of the stories. This study found that the use of digital storytelling employs four student-centered learning strategies: student engagement, reflection for deep learning, project based learning and the effective integration of technology into instruction.

When students take ownership of the stories they are building using digital storytelling they become more motivated and engaged in the process. Digital storytelling provides students with an environment where they can apply communication skills learned outside of school and work collaboratively and think critically while addressing the content they are learning (Xu et al. 2011). Additionally, digital storytelling provides a means of expression for students who struggle with conventional writing. These students find their voice and build confidence through the creation of digital stories. The desire for students to do their best work is increased when the students know that their stories will be shared with

the public. The feedback and acceptance of their work from their peers and the public increases these students view of themselves as writers (Sylvester & Greenidge, 2009). Sharing and evaluating their peer's digital stories helps to foster self-expression and creates an engaged community of learners. They become actively engaged in the exchange of ideas, asking questions and giving and receiving feedback as they evaluate and learn from their peers (Malita & Martin, 2010). By allowing students self-expression and accepting them as a whole, which includes the students home and culture, builds students confidence in their ability to perform a task to the best of their ability. Digital storytelling allows students to see themselves in their work, to actively participate in a community of literacy and helps them define themselves as readers and writers (Kajder, 2004).

Integrating personal stories with textbook content promotes empowerment and builds community in the classroom and increases student engagement in the curriculum. When students create and listen to stories they are more self-aware and are better able to make connections with the storytellers. These connections help students understand themselves and those around them. The role of the storyteller becomes just as important as that of the story writer (Roby, 2010). Burgess (2006) brings the idea that digital storytelling is an example of creativity as a form of effective social communication, where communication is not to be understood only as the exchange of information and ideas but instead as the practice of being social. Digital storytelling takes on a shared language between the creator and the listener. These stories are shared with the world and are commented on and discussed by viewers who may or may not know the storyteller. The act of sharing with the world validates these students view of themselves as writers. It engages and encourages them to work harder to make something of quality that represents who they are to the world at large.

Allowing students to use the technology skills they use outside of the classroom to build knowledge in the classroom engages them in knowledge building and they become more aware of the audience they are trying to reach. Students demonstrate a high level of motivation in exploring the potential of the technology while developing their skills and language use (Burnett, Dickinson, Myers & Merchant, 2006). When students are creating digital stories they are aware that they are writing for a larger audience than just the teacher. Motivation is increased when they know their writing will be viewed and evaluated by their classmates and possibly published on the internet. Engagement also increases with the motivation to create quality work for a larger audience (Sylvester & Greenidge, 2009). The use of peer critiques and teacher evaluations encourages students to begin asking and answering cognitively challenging questions, to give and receive specific feedback on projects and are provides scaffolding, tools and resources to become better writers. When students are actively involved in the learning process they are less likely to become disengaged (Warren & Dondlinger, 2008). Integration of multimedia projects increases research and organizational skills, fosters a greater interest in the content being taught and has an impact on the increased use of higher-order thinking skills (Robin, 2008). Through the use of digital storytelling across the curriculum knowledge is not simply being transmitted between teacher and student but is being actively constructed by each student or group of students through the interactions with their peers, their physical world and the technology they are employing. Digital storytelling gives students control of their own learning and offers a chance for self-expression while fostering learning confidence, task value and motivation (Yang & Wu, 2012). Digital storytelling used across the curriculum improves

multi-literacy skills, improves confidence in students, and increases student engagement in learning tasks.

Throughout the process of creating a digital story students are problem solvers as they make decisions about the elements of the story that will be included. The ability to have choices about the elements in their stories allows them to use their creativity. As they analyze their stories and their classmates they are engaging their critical thinking skills. Digital storytelling gives children a voice to express their ideas and show more of themselves through their creations. The ability to use their creative skills and to express their own ideas engages students in the learning process (Kervin & Mantei, 2011).

Digital storytelling helps build community with in the classroom as students work together solve problems and create their stories. As students share their technology and creative skills they begin to build a learning community. As this community emerges the students become engaged not only in their own learning but in the learning of their classmates as well (Banaszewski, 2002).

Literacy Skills

Literacy skills today cover so much more than reading and writing, the term multi-literacies refers to technological literacy, visual literacy, media literacy and information literacy. These 21st century skills need to be included in lessons so that students can be successful when utilizing the technology they have available at their fingertips twenty-four hours a day (Hett, 2012). Digital storytelling requires students to use both oral and written communications skills, critical thinking skills and varied technology skills. Providing a conduit for substantial gains in mastery of 21st century literacy skills (Gregory, Steelman, & Caverly, 2009).

The question is: Does digital storytelling improve student's literacy skills? Digital storytelling can improve literacy skills if the focus remains on the story first. When the focus is on the structure and content of the story itself the technology will fall into place. Writing is the key; the most important tool in the creation of digital stories is the script. For students to grasp the essence of their story they must first create a story map. A story map is a diagram of the story elements that are to be incorporated into the flow of the narrative. A story map can help students identify weak areas of their story before they begin production. This mapping will let students identify the call to adventure, problem-solution transformation and the closure of the story. The second step in the process is to create a story board that lays out the sequence of events, lets students decide what images will appear where and provides them a scaffold to build their finish work upon. The last step is the addition of technology to create the finish story. When the emphasis is on the technology and not the story the finished product is weak (Ohler, 2006).

In the qualitative study of a high school classroom of struggling writers, Sylvester and Greenidge (2009) found that combining visual images with written text deepens students understanding of content materials. The creation of digital stories allows students to utilize both old and new literacy skills. They have discovered that incorporating digital storytelling into the writing process helps students find their voice, increases their confidence level and improves the structure of their writing. Students who struggle with writing are typically not organized writers, but the process of digital storytelling helps them to become more strategic in the organization of the different pieces of their story. The process of mapping and storyboarding helps them visualize the finished produce. When the students know that their work will be presented to others beyond their classroom they become more aware of their

audience, something with which struggling writers usually have difficulty. It has also been found that the larger audience available via the Internet students can expand their reach beyond their teacher and classmates and increases student's motivation to do their best work.

Yang and Wu (2012) reported in their research study of 110 Taiwan 10th grade English students, that by requiring students to use story mapping and story boards in the creation of their digital stories they will gain a better understanding of scenes and events in their work. This paper and pencil pre-work also allows the students to keep focused on the content of the story and not just the digital elements. They also found that the listening skills of students was an important aspect as they needed to listen and understand their peers work to be able to evaluate and give constructive, meaningful feedback. Each storytelling task challenges students to use technology skills that can then be applicable to other course work beyond the computer and writing courses.

When talking with her high school students, Sara Kajder put forth the question "What is literacy?" The students described literacy as knowing what tool to use to make sense of the world around them, to be able to understand and communicate ideas. Digital storytelling has helped them to both increase their understanding the world and to find their audience beyond their classroom using the technology tools that have been made available to them. Working with students that were reading and writing below grade level Kajder discovered they were more motivated when they were allowed to have some choice in what they were reading and writing about. Being able to access digital stories and then being allowed to express their opinions freely in an online context allowed them to have a voice and they felt that they were writing something that was real and had meaning. Their stories allowed students to tell their story visually, verbally and powerfully, capturing a moment in time. As

the students viewed the stories created by their peers and shared their own work they began to define themselves as readers and writers and could see value in what they had to say.

When using digital media students are excited about what they are doing, they are engaged in the activity and they are supportive of each other (Hett, 2012). Students who struggle to write traditional text show more motivation to write when they know their writing will be published on the Internet. When students know that their story will be viewed by others it promotes their awareness of audience. This is not a skill that is often demonstrated by struggling writers. This awareness of audience, knowing that their writing is published for the world to see, motivates students to create higher quality work. The feedback they receive from the world wide audience helps them to see themselves as competent writers (Sylvester & Greenidge, 2009).

In their examination of the disconnect between academic literacy and new media Ware and Warschauer (2005) studied two technology intensive programs for middle and high school students and found when students are considering which digital elements to include in their stories when they carefully consider each element and its impact on the audience. This demonstrates a strong audience awareness that would not be possible with words alone. The creation of digital stories increased the student's 21st century skills and broadened their ability to apply these skills.

Bull and Kajder (2004) working with high school and college students have found that digital storytelling allows students to experience the power of personal expression. A digital story reveals the writer as opposed to offering facts about a distant topic. The most effective digital stories evoke an emotion from the audience. Digital storytelling can amplify the ordinary voice when it is offered to the public. It becomes a social commentary and

allows students to have a voice in a social context, asking for commentary and reaction to what they have written. As the public comments on the work they present the students begin to see themselves as writers and view their work as something of value.

The combination of voice and image personalizes the commentary and creates a connection to the viewer. Digital stories are marked by their ability to express self-awareness, humor, sincerity and irony. The literacies required to create a digital story cross the divide between formal and informal learning. They allow students to take every day experiences and turn them into elements that tell a tale. They take learned skills and use them to execute a narrative using technology to assemble the components of an oral narrative with visual elements to create a new narrative experience. Digital storytelling can increase confidence in the knowledge that their stories are unique and worth sharing. The stories create a shared language with the author and the audience that helps build understanding (Burgess, 2006).

Digital stories provide rigor and challenges students to learn in new ways. Students begin to understand that their writing needs to create a window to a moment in time. They are required to not only read the words of other but must struggle with their own words and reinvent how they function in the role of readers and writers (Kajder, 2004). Increasing the time students spend on writing practice is vital in improving student's literacy skills. Providing freedom of choice in writing activities increases the on task time of students when working on writing assignments. Digital stories have proven to be more engaging for students and increase the on task time of individuals (Warren & Dondlinger, 2008).

In a study of undergraduate students in Korea in 2011, Xu, Park and Baek found that although the purpose of a digital storytelling is to tell a story the importance of the script

cannot be understated. Students are more likely to take ownership of their writing when they pay more attention to the writing process. They work harder to express their ideas and thoughts and were more actively involved in their learning. Student centered learning promotes higher order thinking skills and encourages students to be more self-expressive. There are more opportunities to be creative and to learn new skills that will aid them in organizing their thoughts in coherent ways. Digital storytelling can also improve student's writing skills, media literacy and critical thinking skills. Digital storytelling creates an environment where students can work collaboratively, build communication skills, and employ both content and technology standards (Xu et al., 2011).

Burnett, Dickenson, Myers and Merchant (2006) concluded through their study of 12 primary students in England, that a dynamic sense of process occurs through the constant writing, reading, and digital element integration; it suggests a physical separation from the text that encourages students to edit and revise their work more thoroughly. Students become more confident in their ability to make meaning in different ways.

Sadik (2008) concluded in his research of Egyptian students ranging between 6-15 years of age, not only are their traditional literacy skills improved through the use of digital storytelling but also through the integration of images, music, and voice plus the process of searching the Internet for these elements they are also increasing technology literacies. Students learn to take the relatively unorganized nature of their personal experiences and assemble them into a storyline that makes sense. Digital storytelling is an extremely powerful method for students to create an end product that uses both old and new literacy skills.

Roby (2010) has found in her research of pre-service and in-service teachers , the use of digital storytelling allows students to use enhanced problem solving skills and improves

their listening and sequencing abilities. By allowing students to access their analytical skills and creative capabilities they can demonstrate understanding and reveal gaps in knowledge. Students can also find connections between cultures and build understanding of similarities between themselves and the storyteller. The role of the listener is just as important as the role of the storyteller. Students learn to be active listeners, how to learn through listening without interruption or judgment. This is a skill that is difficult for some students and teachers alike. Digital storytelling increases the chance of student success through the active learning, community building and the personal connections that initiates deeper connections to subject matter.

Roby looked not only at students but examined both pre-service and in-service teachers. When teachers work through the storytelling process they also learn how to be active listeners. They can reexamine what they believe it means to be a learner and a teacher. Teachers can then use this experience to reconstruct their lessons and redefine what learning will look like in their classrooms. When teachers integrate digital storytelling into their lessons they are teaching students how to utilize the 21st century skills they already possess in a positive way and promote digital citizenship.

Malita and Martin (2010) have also found in their examination of higher education course work, through the use of digital storytelling students are asked to reflect on what they have learned and to examine assumptions. Digital storytelling is pathway for combining both creative and analytical skills and helps students find their voice. They develop communication skills, learn to ask questions, express opinions, construct narratives, write for an audience, and work to improve their language and technology skills. The process of storytelling and meaning making are entwined. Stories are effective in educational settings

because they bring people together by creating a common bond in the classroom. The sharing and evaluating of stories open lines of communication and enable understanding of different cultures and ideas.

Students are surrounded by technology and their natural affordance toward telling stories makes for a winning combination in digital storytelling. It allows students more self-expression and encourages those students less willing to write, providing a new avenue to tell their tales (Wawro, 2012).

Integration

When teachers integrate digital storytelling with content they inspire student learning and creativity, provide authentic learning experiences and create interconnections between subject matter content, themselves and others. Students carry the lessons learned through creating and listening to students to other areas of their classwork. Integration of digital stories with textbook content allows students to learn how to view the world through the eyes of their classmates, which expands their view of the world and increases their chance of success (Roby, 2010).

Digital storytelling provides a means to differentiate instruction to meet a wide range of student needs, it motivates students, helps improve writing skills, encourages research skills, helps to improve organizational skills and is appealing to multiple learning styles. Technology is becoming an ever present component of education. Teachers are working to meet their state and national standards and meet the needs of what is being called the "digital generation". Digital storytelling allows teachers to provide instruction that is challenging enough for gifted students and yet still be engaging and meet the needs of struggling students. These stories can be created across a broad range of content areas but it is essential

that students have a connection to their work. Without a personal point of view the stories can be flat and meaning will be lost in a straight forward presentation of information (Kieler, 2010).

Bryan Alexander, Director of Research at the National Institute for Technology and Liberal Education and Alan Levine, Vice President, community, and Chief Technology Officer for the New Media Consortium (2008) state that although creative writing is the most obvious platform for digital storytelling; art, music and media composition classes as well as other content classes can incorporate digital stories to relate a series of events or describe a complex idea. There are unlimited opportunities for a teacher or a student to use a story to communicate an important subject or idea in an engaging and exciting manner. Teachers can use digital storytelling to introduce a lesson, to spark interest in a topic that has been difficult to obtain student buy-in, or as a means of flipping instruction. They can show digital stories that have been created by past students to help motivate students and capture their attention.

Digital stories do not only engage students in the content but help to spark discussions between students helping them to understand abstract concepts and ideas. Teacher created digital stories can also enhance lessons, providing additional information and maintaining student's interest in longer units of study (Robin, 2008). How we speak to students is important and digital storytelling represents one of the most powerful instructional tools that teachers can add to their arsenal. Students are captivated by videos they watch on YouTube. Teachers can use this interest to in these quirky videos to spark student's interest in content materials. Many teachers today are digital natives and are more comfortable with this method of instruction and students are benefiting from their inclusion of digital storytelling activities in their lessons. By using instructional techniques that connect to how they are consuming

media on their own time is one very effective way to engage students with the content they are learning. (Dreon, Kerper & Landis, 2011).

Students can demonstrate understanding, show mastery of complex concepts and create original content. Digital storytelling can also be a powerful tool in the classroom when used to produce instructional presentations created by students to inform their peers about a particular concept or practice. This can be done in a wide range of instructional subject areas ranging from math and science, and fine arts classes (Robin, 2008).This transformation of student as teacher offers them the opportunities to explore broader notions of literacy and new kinds of relationships between the content and themselves (Burnett et al., 2006).

Digital stories can be created to demonstrate a process or procedure and can be used as a means of assessment by teachers. Stories can be created to present a personal narrative, illustrate an original story or to provide commentary to a literary work in English courses. Students can also use digital storytelling to present information about historical events, or to take you on a visual journey to another place and time (Robin, 2008). Student presentation of knowledge learning provides the potential for expansion of worldviews and global awareness when they experience the unique personal stories of others (Roby, 2010).

Dreon, Kerper and Landis (2011) point out students today are very tuned into YouTube and other social media platforms. They spend hours watching engaging video clips that cover a wide variety of subject matter. The very nature of the clips, being fast paced and short in length is engaging to adolescents. This is viewed by many as a negative aspect of today's culture but teachers can use this interest as a way to reach students and connect them to curriculum. Teachers can create videos about content that are engaging and appealing to the students. The students enjoy the videos, are more likely to watch them and have better

recall of the information presented in comparison to the traditional classroom lecture and practice model. There is an added benefit for students as they can watch a video as many times as they need to gain understanding where in a lecture you hear the information once. Many students that are struggling in the classroom will not ask the teacher to repeat what was taught but will watch a video more than once.

YouTube also provides a storehouse for teacher made videos teachers. It allows for a one stop storehouse for classroom content that is easily accessible for students. Teachers can create their own private channel in YouTube where they post videos they make for instruction, items they have found posted by others or that show historical events and a safe place to post videos created by their students (Mullen & Wedwick, 2008). In a TeacherTube account the students only have access to videos that the teacher puts in their playlist limiting the chance that inappropriate content will be accessible.

Students are not only using YouTube to gain access to connect with the outside world. There is an ever increasing amount of teens that are reading blogs, Wikis, online news sites and sites like Wikipedia. They listen to podcasts, creating bookmark lists and connecting with their friends and online acquaintances on social media sites like Facebook. These sites are popular with young people today because of the user contributed content. The advantages of these types sites is you can comment on the content and read the comments of others. They provide the opportunity to post your own ideas and thoughts for others to respond to making them active social dialogs where students can express their opinions and have access to the viewpoints of others from around the world. The biggest factor in the growth of this type of media is that they have the capability to be personalized. This

personalizing by users is changing how young people are interacting with their world, finding entertainment, creating social relationships and conducting business (Robin, 2008).

Mullen and Wedwick (2008) believe that teachers have a responsibility to prepare students for the technological world that we live in today. It is important for teachers to bridge the gap between the use of technology in student's personal lives and education. There is a great deal of informal learning that takes place during the creation of digital stories which allows students to manipulate new forms of media with a high level of comfort. Digital stories, YouTube and blogs are readily available and easy to use at any grade level. The integration of these types of medias used in the classroom will aid students improve their technological skills which will aid them in their path to success in today's world. The disconnect between how students use technology outside of school and in school is diminished when students are allowed to create digital stories to demonstrate understanding of content materials across the curriculum (Ware & Warschauer, 2005).

One of the biggest complaints from students at all levels is that they are often bored in the classroom. If the information being presented doesn't catch their attention they become bored and tune out what is being taught. The use of PowerPoint presentations was one of the leading factors that cause students to become bored and disinterested. The least boring methods of instruction include labs, group discussions and lessons that include opportunities for students to actively participate. Students today have lived the majority of their lives surrounded by technology and expect to be "connected" at all times. Teachers need to begin to take advantage of the technologies that students are using outside the classroom to help them make the connections to what is happening in school. Digital storytelling is one way to accomplish this task (Berk, 2009).

Noted in the research of Sadik (2008) and Malita and Martin (2010), storytelling is starting to be used in multiple content areas such as history, science, religion, and math. Meaningful integration of technology and digital storytelling encourages students to create new knowledge, solve new problems and employ critical thinking skills. It allows students to build knowledge instead of passively receiving it and allows students to demonstrate understanding. As students research and prepare to create their stories the interaction with all the elements of their stories it will increase knowledge in their subject matter, teach them to be active listeners, improve their organizational skills and will provide them with real-world experiences (Blas & Paolini, 2013).

Writing is usually first associated with English coursework but there are several ways that digital storytelling can be integrated into science and math curriculum. These stories encourage students to connect science and math to their daily lives. It highlights the advantages of creating a context for students to experience abstract ideas through their everyday experiences (Rebmann, 2013). One of the simplest forms of integrating digital storytelling to math and science contents is through podcast. A podcast provides students a media which can be used to describe lab results, summarize what has been learned in a unit of study or state the required steps in completing a problem solving activity. The next step would be to mix images, text and voice to show what has been learned, demonstrate a procedure or to model the steps in solving a complex math problem or science experiment. This can be done through programs and applications like Vidiolicious, Voice Thread and Anamoto. The more tech savvy students are will determine the level of storytelling that takes place. When students are provided with opportunities to utilize their own personal

technological skills the more their 21st century literacies will increase (Hoban, Nielson & Shepherd, 2013).

Another form of digital storytelling which can be used in the classroom involves aspects of computer programming. The Scratch is a programing based application created at MIT and can be downloaded for free. Scratch has become a source of storytelling that adds a new dimension to the learning process. Scratchers can tell stories, create personal narratives, demonstrate understanding of concepts in math and science, and show understanding of historical events. Students can then share their Scratch creations online at scratch.mit.edu. Students can access this site to explore what others have Scratched and comment on other students creations. They can post hints and tips on how to work more productively with the programming blocks. Students can learn how to add more dimension to their own works through ongoing conversations. Scratch has unlimited possibilities for how it can be used with students as young as 8 years old (Resnick, Maloney, Monroy-Hernandez, Rusk, Eastmond, Brennan, Millner, Rosenbaum, Silver, Silverman, & Kafai, 2009).

Supporting students in the process of creating their stories is essential. Teachers can do mini lessons along the way to teach the steps in the process. They can also have peer tutors that help students whose skills are not as advanced and have problem solving sessions so that students can talk about the process and ask for advice or share a success story (Hett, 2012). In the 2010 report from the National Center for Education Statistics (NCES), 97% of public school teachers have access to computers in their classrooms while only 42% have them use these computers to create multimedia presentation. When looked at by educational level only 35% of elementary teachers use the available computers for creating presentations and 53% at the secondary level. This report also states that 69% of teachers use available

computers for practice of basic skills and 66% use the available computers for research purposes. Only 9% of teachers are taking advantage of their computers for students to contribute to blogs or wikis and 31% allow communication with other students outside of their school community (Gray, Thomas & Lewis, 2010). These statistics tell a tale of computer usage in our schools. Technology is being used in its most basic form, to research and write papers, drill and practice activities and to prepare basic visual presentations.

Digital storytelling is still relatively new in the classroom despite its prevalence outside the school setting. Teachers may not be aware of the many free and powerful tools that come packaged with their computers. Those teachers that are aware of the impact digital story telling can make on their students still shy away from integrating it into their lessons because they are feel they do not have the proper training and lack confidence that they will be knowledgeable enough to teach their students the skills they will need. There is also a fear that managing a classroom of students working in a medium that requires more teacher attention and assistance would be too much for them to handle confidently. The loss of classroom management that occurs when you work in a project based atmosphere makes many teachers uncomfortable. Support from administration, training and assistance from media and technology specialist within your staff is needed to get teachers to open themselves to the advantages that can be gained through students creation of digital stories (Sylvester & Greenidge, 2009).

Digital storytelling is being used more often in both primary and secondary school settings but many times the emphasis is on the technological aspect. As teachers implement digital storytelling into their curriculum they must work to put a great deal of thought and consideration into the content matter that is being incorporated into the story. They must

carefully consider their teaching methods and the real world needs of the students if they are going to adequately address 21st century literacy skills. The Technological Pedagogical Content Knowledge theory is an excellent framework for teachers to use as a guide to integrate technology into their lessons; allowing them to create lessons that use technology in critical, creative and responsible ways (Robin, 2008).

No matter which content area the stories are being created for they teachers must be sure that the subject matter of the story is not lost in the technological aspect of creating the finished work. There are seven elements of effective digital storytelling that should be followed to be sure that this does not happen.

1. Point of view
2. A dramatic question
3. Emotional content
4. Economy
5. Pacing
6. The gift of your voice
7. An accompanying soundtrack (Ohler,2006)

When these elements are used in stories students will be more likely to have a connection to what they are writing and their voice will come through. The personal aspect of the story is what makes them compelling and effective as learning tools. When the students have that connection to what they are doing they are more engaged (Bull & Kajder, 2004). When teachers integrate technology into their curriculum with purpose and forethought they will also be meeting the National Educational Technology Standards for Teachers. As teachers themselves share their stories with students they create the opportunities for genuine

exchange to take place and they appear to be more than just teachers but as real people (Roby, 2010).

Digital storytelling helps to expand student thinking and teaches them to use many technology tools and allows creativity and personalization. They learn to look at the world through the eyes of others as they listen to the stories of their peers. Even though digital storytelling can be a bit overwhelming when teachers first begin to implement them in their content, the end results are well worth the challenge (Mullen & Wedwick, 2008).

Conclusions and Recommendations

Stories have been around for as long as we as people can remember and they will continue to be told well into the future. It is the responsibility of teachers to be sure that students understand the importance of passing along stories to future generations. Stories help us see parts of the world that we may never be able to see in any other way, to understand different cultures that we may not be able to experience firsthand and to be able to understand ideas and concepts that may otherwise never reach our everyday world. Technology provides us a medium with which to touch the world with our own tales and to leave our mark on history. We are in an era of change, we can either be makers of change or we can stand still and watch as the moves forward.

Student Engagement

Students today are bored, they want to be engaged in what is happening around them and the traditional classroom does not meet this expectation. When we as teachers fail to meet this expectation of students is it because the expectation is unreasonable or are we standing still, fighting against and resisting change?

Does digital storytelling increase student engagement? I believe that it does. The literature reviewed in this paper has many examples of increased student engagement. Students find projects that allow them to be creative and go beyond a paper and pencil assignment to be more engaging (Sadik 2008). They want to be able to have some choice in what they are learning and how they demonstrate this new knowledge. Digital storytelling allows them this chance to use their creative skills in new ways. They can have fun with the assignment and show more of themselves when they are creating a digital storytelling project (Robin, 2008).

They still need to have definite guidelines to follow and need to have clear expectations from their teachers, but they have a much broader range of possibilities of how to complete an assignment. Teachers need to be advisors in the process and will have to teach students how to use the hardware and software needed to create their finished product (Sylvester & Greenidge, 2009). There may have to be a bigger investment of time by the teachers in the beginning to teach their students how to use the tools they will need to complete their stories but in the end the rewards will be well worth the time invested. Overall, students take ownership of their work and in the end are more engaged in the assignment process (Sadik, 2008).

Literacy Skills

Through the examination of articles in this review I have found significant evidence that digital storytelling increases 21st century literacy skills. When looking at the scope of what students are expected to know when they reach each level of education you begin to see how literacy is so much more than reading and writing. 21st century learning is becoming a large part of the Common Core Curriculum Standards that are being written by the Department of Education and adopted by many states throughout the United States. Digital storytelling, when implemented across the curriculum, can be an effective tool to meet these standards. Students still need to read and write so that they can communicate in the electronic world in which we live. But they also need to know how to determine what is reliable, credible information and what is not and how to use this information in an responsible and ethical manner. All of these skills can be taught through the creation of digital stories.

Digital storytelling helps students learn to use the tools available to them to express ideas in a multimedia format. Students learn to integrate pictures, words, music and voice to

express their ideas and information. They gain a better understanding of the structure and sequence of a story when they work with the multiple layers and elements involved in a digital story. They better understand that the story needs have a purpose and a natural flow of information to make it understandable and watchable. They can identify who their audience will be so they can create a connection to their viewers. All of these elements are magnified when creating a digital story as opposed to a common classroom assignment of a static research paper or completion of a worksheet or test. A digital story is work that students can take pride in and find a purpose that is applicable to the world beyond the classroom.

Integration

How can digital storytelling be integrated across the curriculum in K-12 classrooms? Digital storytelling is being used to help English language learners improve their language skills (Yang & Wu, 2012), primary students learning about other cultures (Burnett et al., 2006), social studies classes learning about the present and the past (Malita & Martin, 2010) programing skills by students as young as 8 (Resnick et al., 2009), to meet the needs of both struggling (Sylvester & Greenidge,2009) and gifted students (Kieler, 2010). There are unlimited possibilities for using digital storytelling to teach multiple concepts throughout the subject areas in K-12 classrooms.

Teachers need to be open to learning how to use technology required to create digital stories. The basic tools that are needed to implement storytelling into classroom lessons are already available in 90% of the classrooms across the country. The largest percentage of teachers use the technology available to them for word processing (Gray et al., 2010). With better training opportunities for teachers on how to truly integrate technology the percentage

of uses beyond basic word processing would increase. Teachers need to be supported by the administration of their schools when it comes to technology integration. They should plan into their technology budgets training on how integration can happen. Training needs to be ongoing an involve work time to create the types of projects that they are going to be asking their students to create. This way their comfort level will increase and they will be more likely to take the lessons they have learned and use them in the classrooms. There should be sharing time during each in-service to showcase what teachers have learned and how they have used the training with students. This sharing time promotes open conversations between peers and provides a support system within the staff that goes beyond the tech team.

At the university level our teacher education programs need to better train pre-service teachers how to appropriately use technology in their lesson planning. There is a huge difference between having technology in the hands of the students and teaching them how to constructively use the technology that is available. If university students are creating content with technology in their teacher preparation programs they will carry that knowledge into their own classrooms.

Recommendations

This review has found a need for more research of digital storytelling at the elementary level. The majority of the research found while conducting this literature review focused on the secondary and collegiate level. Elementary students today are digital natives and are comfortable using technology. They can begin creating digital storytelling projects as early as kindergarten. Expanding research into the elementary level will promote using digital storytelling as an element in elementary classrooms. Long term studies to track the

benefits of students working with this multimedia format would help to encourage educators to implement the creation of stories in their curriculum.

There is also a need for research on the impact of training pre-service teachers in technology integration. Are they more likely to use technology in their own teaching if they have been trained using the technology that their students will have available to them in their classrooms and schools. University students today are the leading edge of what is being called the Net Generation, they have grown up surrounded by technology and are used to having it available to them. Is it instinctive for them to use technology when creating their lesson plans or do they still need to have formal instruction on how to fully integrate it into their curriculum? It cannot be assumed that because these university students are digital natives that they will instinctively know how to use technology in teaching since the majority most likely have not been taught with full integration.

Conclusion

In conclusion I believe that the literature supports integration of digital storytelling into k-12 curriculum to improve 21st century literacy skills and improves student engagement. When students enjoy what they are doing in school and feel that they have some control and choice in their learning they put more effort into doing their best work. They feel that what they have to say matters, they learn more about their own community and look to learn more about the world around them.

References

Alexander, B. , & Levine, A. (2008). Web 2.0 storytelling: Emergence of a new genre. *EDUCAUSE Review*, *43*(6), 40.

Banaszewski, T. (2002). Digital storytelling finds its place in the classroom. *Multimedia schools*, *9*(1), 32-35.

Berk, R. A. (2009). Teaching strategies for the net generation. *Transformative Dialogues: Teaching & Learning Journal. 3*(2).

Blas, N. , & Paolini, P. (2013). Beyond the school's boundaries: Policultura, a large-scale digital storytelling initiative. *Journal of Educational Technology & Society, 16*(1), 15.

Bull, G. , & Kajder, S. (2005). Digital storytelling in the language arts classroom. *Learning & Leading with Technology*, *32*(4), 46-49.

Burgess, J. (2006). Hearing ordinary voices: Cultural studies, vernacular creativity and digital storytelling. *Continuum: Journal of Media & Cultural Studies*, *20*(2), 201.

Burnett, C., Dickinson, P., Myers, J., & Merchant, G. (2006). Digital connections: Transforming literacy in the primary school. *Cambridge Journal of Education*, *36*(1), 11-29.

Dreon, O. , Kerper, R. , & Landis, J. (2011). Digital storytelling: A tool for teaching and learning in the YouTube generation. *Middle School Journal*, *42*(5), 4-9.

Gray, L., Thomas, N., & Lewis, I. (2010). *Teachers' use of educational technology in U.S. public schools: 2009* (NCES 2010-040). Washington, DC: National Center for Educational Statistics, Institute of Education Sciences, U. S. Department of Education. Retrieved April 1, 2013, from http://nces.ed.gov/pubs2010/2010040.pdf.

Gregory, K. , Steelman, J. , & Caverly, D. (2009). Techtalk: Digital storytelling and developmental education. *Journal of Developmental Education, 33*(2), 42.

Hett, K. (2012). Technology-supported literacy in the classroom: Using audiobooks and digital storytelling to enhance literacy instruction. *Illinois Reading council Journal, 40*(3), 3.

Hoban, G. (2013) Explaining and communicating science using student-created blended media. *Teaching Science: The Journal Of The Australian Science Teachers Association*, *59*(1), 32.

Kieler, L. (2010). A reflection: Trials in using digital storytelling effectively with the gifted. *Gifted Child Today, 33*(3). 48-52.

Kajder, S. (2004). Enter here: Personal narrative and digital storytelling. *English Journal*, *93*(3), 64.

Karchmer-Klein, R., & Shinas, V. (2012). Guiding principles for supporting new literacies in your classroom. *Reading Teacher*, *65*(5), 288.

Kervin, L. and Mantei, J. (2011). This is me: Children teaching us about themselves through digital storytelling. *Practically Primary, 16*(1), 4-7.

Lowenthal, P. R. (2008). Online faculty development and storytelling: An unlikely solution to improving teacher quality. Journal of Online Learning and Teaching, 4(3), 349-65.

Malin, G. (2010). Is it still considered reading? Using digital video storytelling to engage adolescent readers. *Clearing House*, *83*(4), 121.

Malita, L., and Martin, C. (2010). Digital storytelling as a web passport to success in the 21st century. *Procedia Social and Behavioral Sciences 2. 3060–3064.*

Mullen, R. , & Wedwick, L. (2008). Avoiding the digital abyss: Getting started in the classroom with YouTube, digital stories, and blogs. *Clearing House*, *82*(2), 66.

Ohler, J. (2005). The world of digital storytelling. *Educational Leadership*, *63*(4), 44.

Resnick, M. Maloney, J., Monroy-Hernandez, A., Rusk, N., Eastmond, E., Brennan, K., & Kafai, Y. (2009). Scratch: Programming for all. *Communications of The ACM*, *52*(11), 60-67.

Robin, B. (2008). Digital storytelling: A powerful technology tool for the 21st century classroom. *Theory Into Practice*, 47, 220-228.

Roby, T. (2010). Opus in the classroom: Striking CoRDS with content-related digital storytelling. *Contemporary Issues in Technology and Teacher Education*, *10*(1), 133-144.

Sadik, A. (2008). Digital Storytelling: A meaningful technology-integrated approach for engaged student learning. *Educational Technology Research and Development*, *56*(4), 487-506.

Sylvester, R., & Greenidge, W. (2009). Digital storytelling: Extending the potential for struggling writers. *Reading Teacher*, *63*(4), 284-295.

van Gils, F. (2005). Potential applications of digital storytelling in education. In*3rd twente student conference on IT.*

Ware, P. D., & Warschauer, M. (2005). Hybrid literacy texts and practices in technology intensive environments. *International Journal of Educational Research*, *43*(7-8), 432-445.

Warren, S. J., & Dondlinger, M. J. (2008). A MUVE towards PBL writing: Effects of a digital learning environment designed to improve elementary student writing. *Journal of Research on Technology in Education*, *41*(1), 113-140.

Wawro, L. (2012). Digital storytelling. *Children & Libraries: The Journal of the Association for Library Service to Children*, *10*(1), 50.

Xu, Y., Park, H., and Baek Y. (2011). A new approach toward digital storytelling: An activity focused on writing self-efficacy in a virtual learning environment. *Educational Technology & Society. 14*(4), 181-191.

Yang, Ya-Ting C. and Wu, Wan-Chi I. (2012) Digital storytelling for enhancing student academic achievement, critical thinking and learning motivation: A yearlong experimental study. *Computers in Education*, available on line January 3, 2012.